CDF Operations Report

Masa Tanaka

12th-January-2004

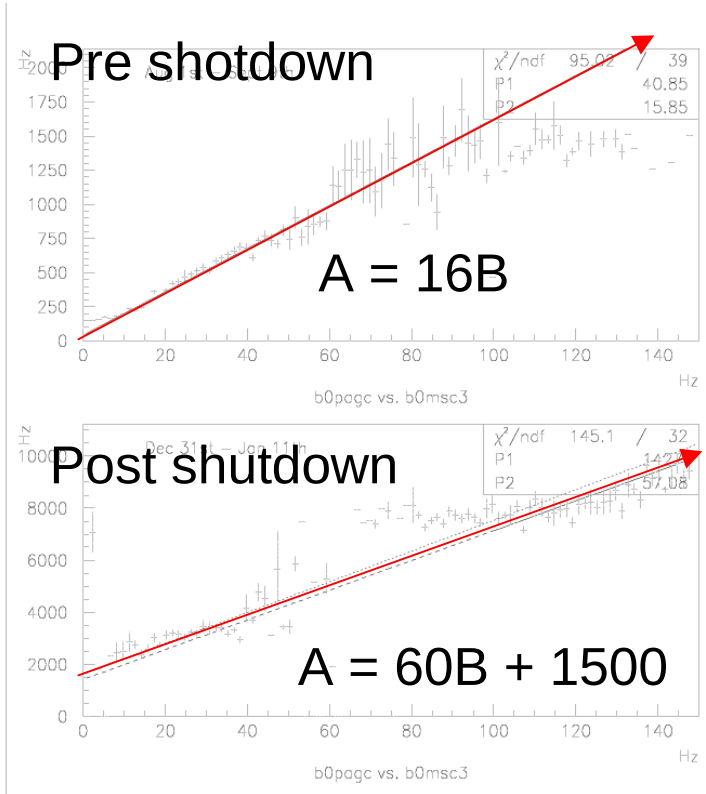
All Experimenters Meeting

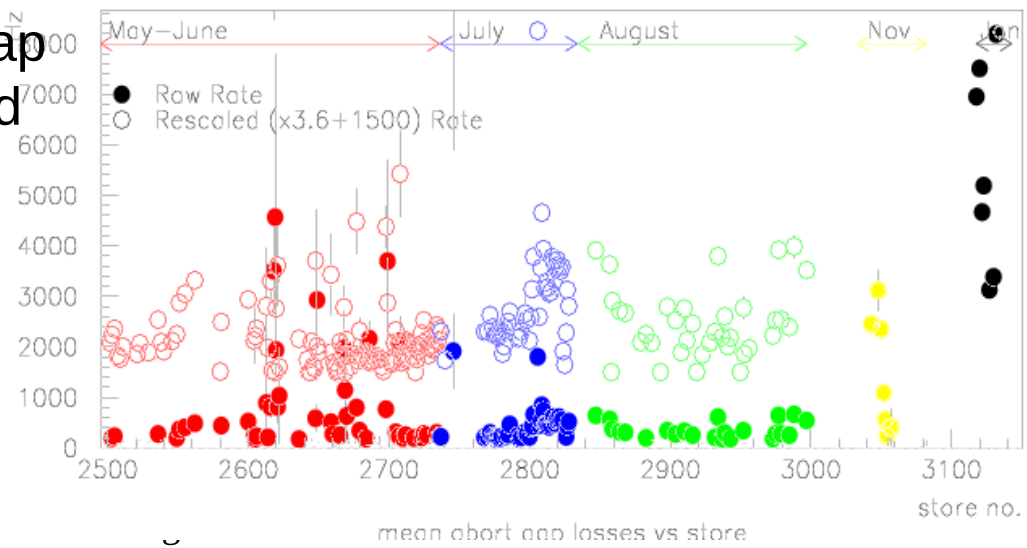
This Week's Stores

Date	Store	Inst Lum (initial)	Int Lum (delivered)	Lum to tape (ε)
Mo 1/5	3127	46.8e30	2183	1822 (81%)
Tu 1/6	3130	49.2e30	2483	1984 (75%)
Th 1/8	3132	50.6e30	2568	1912 (80%)
Sa 1/11	3148	36.5e30	1273	1028 (84%)
Total			8.5 pb^{-1}	6.7 pb^{-1} (79%)

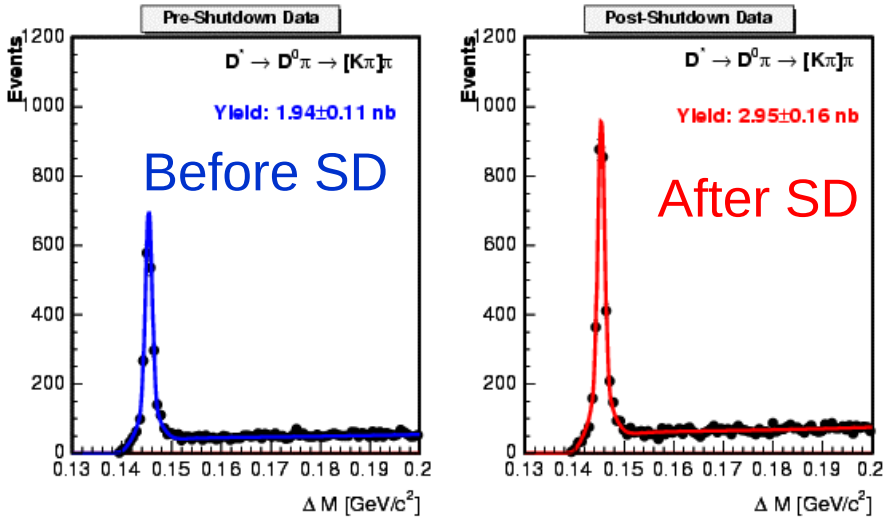
TeV Losses

- Abort gap losses
  - –Since Run II started, we had lost many SVX readout chips by TeV abort while high loss in abort gap
  - – The counter has been moved during this shutdown (b0pagc = A)
  - – Re-calibrate by normalizing t the other counter response (b0msc3 = B)
    - x3.6 with 1.5kHz offset
- Si people thinks the high abort gap rate in January can't be explained only by the counter movement
- Meeting Tuesday for further discussion
  - –To decide new baseline for Si on

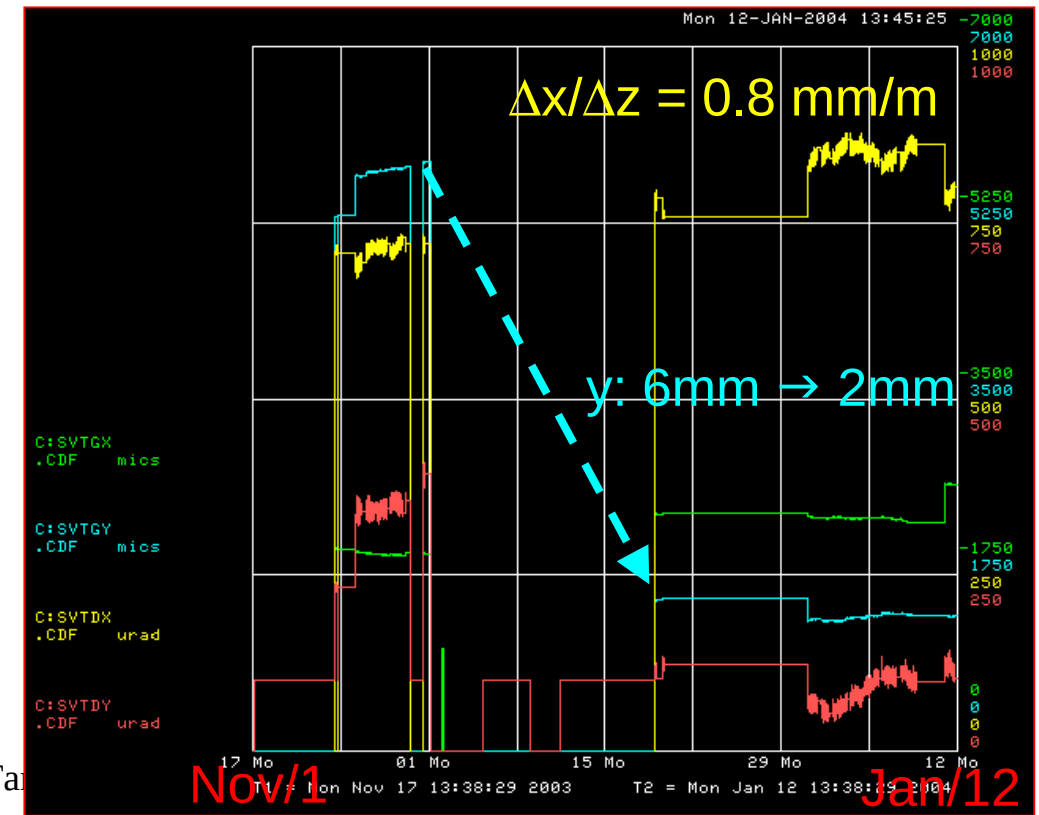




Beam Position



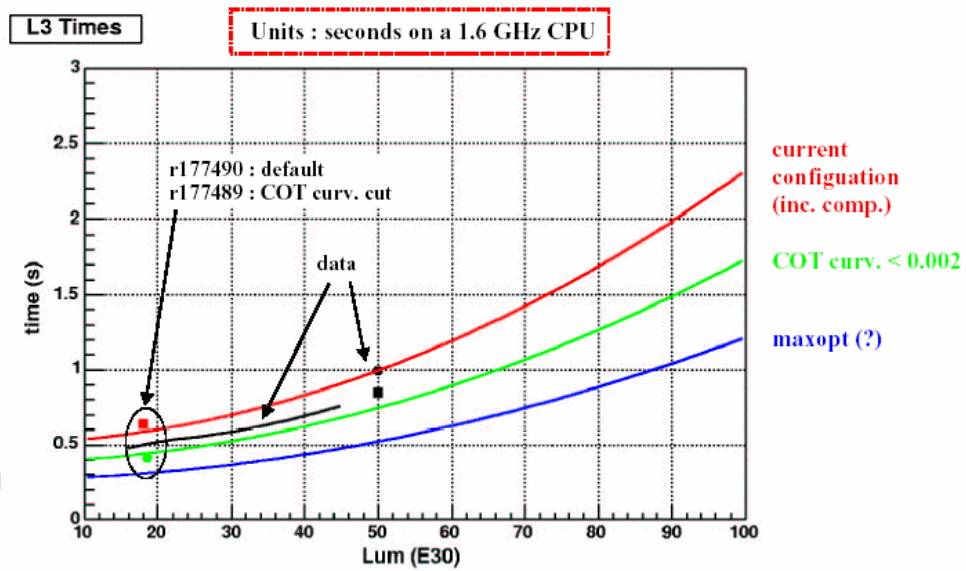
- Our beamline was off by > 6 mm
  - X = - 2 mm : $\Delta x/\Delta z$ = 0.8 mm/m
  - y = 6 mm : $\Delta y/\Delta z$ = 0.3 mm/m
- It is centered early December
  - x = -2 mm : $\Delta x/\Delta z$ = 0.8 mm/m
  - y = 2 mm : $\Delta x/\Delta z$ = 0.1 mm/m
- We are recoding x1.5 more $D^* \to D\pi$ after the shutdown
  - It's preliminary number
  - ~+20%: COT improvement
  - ~+30%: the beamline movement
    - Same impact as L=5e31 → 6.5e31
- We are still concerned $\Delta x/\Delta z$
  - It is smaller effect



DAQ Deadtime

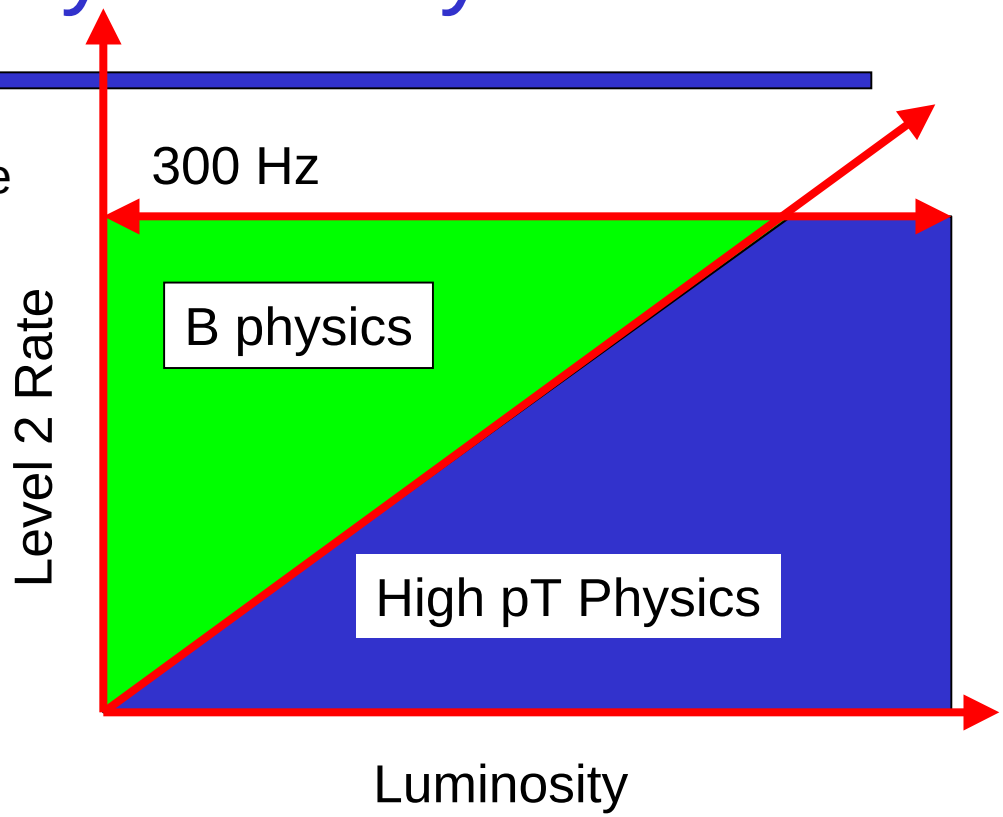
- Spec for Run II CDF DAQ system
  - –<5% DAQ dead time at L=2e32
- However if Tevatron gave 2e32 today, of course, we are not ready
- We are usually operating our system just a little bit ahead of the accelerator performance
- The problem:
  - –After shutdown, TeV is performing much better than CDF thought
    - Thursday store could be ~6e31
    - FY04 design is 3e31
    - Thanks to AD for hard work over the holiday season while CDF didn't enough to follow!

- Past few weeks, we were limited by the CPU power in L3 PC farm
  - –Processing time per events growing
  - –Being resolved by optimizing the L3 software, and adding more CPU power in Level 3



Luminosity and Physics

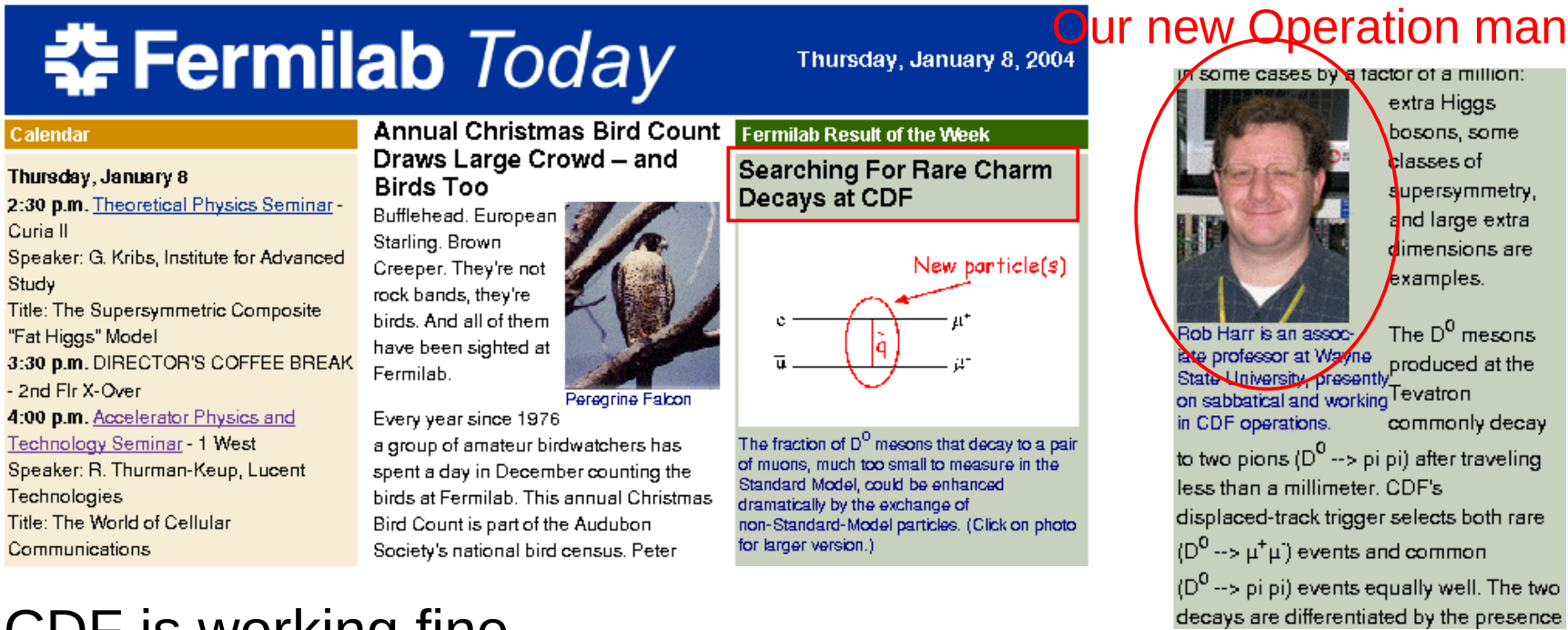
- Our data taking system is basically rate limited:
  - Level 1 : ~14 kHz
  - Level 2 : ~300 Hz
  - Level 3 : ~75 Hz
- "High pT physics" program
  - Higgs, Top, New physics
  - Need Luminosity
- "Low pT physics" = B physics
  - Filling the whatever trigger bandwidth which isn't used by High pT
  - L=6e31 is sort of turning point B physics starts losing its budget
- People is working hard to maximize the B physics outputs for coming high luminosity running



- CDF has already submitted 4 journal papers on B/Charm physics
  - Lots more coming
  - Many ph.D theses

Summary

Our new Operation manager



Fermilab Today

Thursday, January 8, 2004

Calendar

Thursday, January 8
2:30 p.m. Theoretical Physics Seminar - Curia II
Speaker: G. Kribs, Institute for Advanced Study
Title: The Supersymmetric Composite "Fat Higgs" Model
3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4:00 p.m. Accelerator Physics and Technology Seminar - 1 West
Speaker: R. Thurman-Keup, Lucent Technologies
Title: The World of Cellular Communications

Annual Christmas Bird Count Draws Large Crowd – and Birds Too

Bufflehead. European Starling. Brown Creeper. They're not rock bands, they're birds. And all of them have been sighted at Fermilab.

Peregrine Falcon

Every year since 1976 a group of amateur birdwatchers has spent a day in December counting the birds at Fermilab. This annual Christmas Bird Count is part of the Audubon Society's national bird census. Peter

Fermilab Result of the Week

Searching For Rare Charm Decays at CDF

New particle(s)

The fraction of D^0 mesons that decay to a pair of muons, much too small to measure in the Standard Model, could be enhanced dramatically by the exchange of non-Standard-Model particles. (Click on photo for larger version.)

in some cases by a factor of a million: extra Higgs bosons, some classes of supersymmetry, and large extra dimensions are examples.

Rob Harr is an associate professor at Wayne State University, presently on sabbatical and working in CDF operations.

The D^0 mesons produced at the Tevatron commonly decay to two pions (D^0 --> pi pi) after traveling less than a millimeter. CDF's displaced-track trigger selects both rare (D^0 --> $\mu^+\mu^-$) events and common (D^0 --> pi pi) events equally well. The two decays are differentiated by the presence

- CDF is working fine
  - Just one step behind the accelerator performance, though
- It's my last week as CDF Ops manager
  - Rob Harr will keep taking care of CDF B physics at the front